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BOOKS " of the

BRITISH FIRE PREVENTION COMMITTEE.—No. 167.

Edited by the Executive.

FIRE TESTS WITH TEXTILES

FLANNELETTE "ORDINARY"
FLANNELETTE "FINE FINISH"
ART MUSLIN
CURTAIN NET
SCENIC CANVAS

as also

TISSUE PAPER AND WADDING
UNTREATED AND TREATED

with

SNOWDON'S FLAME-PROOFING SOLUTION

submitted for test by

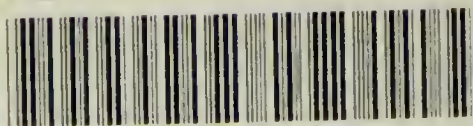
SNOWDON & CO. LTD., LONDON

The Committee's Report

ALL RIGHTS RESERVED

LONDON, 1912

PUBLISHED AT THE OFFICE OF
THE BRITISH FIRE PREVENTION COMMITTEE.
(Founded 1897—Incorporated 1909)
8 WATERLOO PLACE, PALE MALL.



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PUBLISHED AT THE OFFICES OF
THE BRITISH FIRE PREVENTION COMMITTEE
(Founded 1807—Incorporated 1890),
8 WATERLOO PLACE, PALL MALL.

Two Shillings and Sixpence.

OBJECTS OF THE COMMITTEE.

The main objects of the Committee are:

To direct attention to the urgent need for increased protection of life and property from fire by the adoption of preventive measures.

To use its influence in every direction towards minimizing the possibilities and dangers of fire.

To bring together those scientifically interested in the subject of Fire Prevention.

To arrange periodical meetings for the discussion of practical questions bearing on the same.

To establish a reading-room, library and collections for purposes of research, and for supplying recent and authentic information on the subject of Fire Prevention.

To publish from time to time papers specially prepared for the Committee, together with records, extracts, and translations.

To undertake such independent investigations and tests of materials, methods, and appliances as may be considered advisable.

The Committee's Reports on Tests with Materials, Methods of Construction, or Appliances are intended solely to state bare facts and occurrences, with tables, diagrams, or illustrations, and they are on no account to be read as expressions of opinion, criticisms, or comparisons.

The Committee is not responsible for the views of individual authors as expressed in Papers or Notes, but only for such observations as are formally issued on behalf of the Executive.

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FIRE SERVICE COUNCIL	
8 WATERLOO PLACE, PALL MALL, LONDON, S.W.	
Col.	Wm. P. M. C.
C.	
No.	

MEMORANDUM.

FLANNELETTE TESTS (STANDARD TESTS).

Textiles intended to be permanently non-inflammable can only obtain classification as non-flaming if they fulfil the conditions of the following standard tests:

(a) Three samples, comprising each (about) one square yard of the material to be tested, shall be washed with soap and water and ironed ten times.

(b) The samples shall be ironed once (in addition) with an ordinary household iron within three hours, but not less than one hour before the test and shall be dry to the touch immediately before testing.

(c) The samples thus prepared shall be measured exactly and their areas shall not vary more than 10 per cent above or below a square yard.

(d) The samples shall be suspended in rotation from a wooden lath, vertically, by three tacks, clips, or other metal fastenings.

(e) Fire shall be applied at the centre of the bottom edge from a taper $\frac{1}{8}$ in. diameter, not more than 12 in. or less than 6 in. long.

(f) The lighted end of the taper shall be held at the edge for not less than 15 seconds or more than 30 seconds.

(g) If not more than 5 per cent of the area actually under test burns within 60 seconds, when taken on the average of three samples, the material shall be classified as "Non-flaming."

Note.—Should more than 5 per cent, but less than 25 per cent, burn within sixty seconds, the definition "Flames Readily" might be applied, but if more than 25 per cent burns, the definition "Burns Rapidly" might be applied.

Note.—Where the treatment of the textile is not intended to withstand the effect of washings, but requires renewal after every washing, the same test should be applied, but the washings or ironings should be required and the classification would only have bearing upon the efficiency of the individual final treatment and not upon its capacity to withstand the effect of washings.

Note.—The standard tests should, where possible, be supplemented by additional tests with samples of one yard hung pleated, and samples of one yard hung at end, and flame should be applied to these samples both from a taper and from a spirit lamp. In pleated samples the pleating should reduce the front of the sample to one foot frontage.

BY ORDER.

London, 1910.

NOTE.

The question of reducing the number of lives lost annually owing to the rapid burning of flannelette has long been before the Committee, as also suggestions for reducing the risk of fire in bazaars, drapers' shops and places of public entertainments where gauze, muslin, curtain net, wadding and tissue paper is largely used for decorative effect. The question of the impregnation of scenic canvas as used in theatres has also claimed attention.

The tests here recorded are a valuable contribution to the subject inasmuch as they plainly indicate that a suitable flame-proofing mixture is on the market which can be relied upon—when properly applied—to render textiles, paper and wadding “non-flaming.”

The compound has to be applied after every washing of a textile, but when applied does not appear to injuriously affect the textile in question.

The advantage of having non-flaming decorations cannot be sufficiently emphasized after the experiences of the past, both in retail establishments and places of public entertainments such as bazaars.

ELLIS MARSLAND.

Waterloo Place,

London, S. W.

September 4th, 1912.



Fig. 1. View showing Method of Tiesing,
Yard length of material extended and suspended.



View showing Method of Tiesing.

Fig. 2. Yard length of material, pleated and suspended
Fig. 3. Yard length of material, suspended from one corner



OFFICIAL REPORTS
OF THE
British Fire Prevention Committee

(FOUNDED 1897 - INCORPORATED 1899.)

FIRE TESTS No. 167, a, b, c, d, e, JUNE 26th, 1912.

TEXTILE FABRICS

Flannelette "Ordinary," Flannelette "Fine Finish,"
Art Muslin, Curtain Net, Scenic Canvas, as also Tissue Paper and
Wadding untreated and treated with Snowdon's Flame-proofing Solution.

SUBMITTED FOR TEST BY

SNOWDON & CO. LTD., LONDON.

OBJECT OF TEST.

To ascertain the effect of a jet of flame on a set of samples
of the following fabrics:

Group I: Flannelette known as "ordinary."

Group II: Flannelette known as "fine finish."

Group III: Art Muslin.

Group IV: Curtain Net.

Group V: Scenic Canvas.

Each group to be sub-divided and dealt with as follows:

- (1) One set of samples in each group to be tested as procured from the vendor.
- (2) One set of samples in each group to be tested, after having been ten times washed, dried and ironed.
- (3) One set of samples in each group to be tested after having been ten times washed, dried and ironed, and treated once with the flame-proofing solution after the tenth washing.

To ascertain the effect of a jet of flame on the following materials:

Group VI: Tissue Paper.

Group VII: Wadding.

Each group to be divided as follows:

- (1) One set as procured from the vendor.
- (2) One set as treated by the testor.

Note.—For the standard tests not less than six treated samples were to be submitted, and these samples of materials to be approximately one square yard each ($0.836m.$).

The samples of materials for the additional tests were to be not less than 1 yard ($0.914m.$) by 1ft. ($0.305m.$), and not less than three treated samples to be submitted.

The number of samples submitted for test was to be 168.

Note.—Each group has for reference purposes been sub-divided in two groups.

SUMMARY OF TESTS.

Of the 168 samples submitted, 143 were tested. Ninety-two were suspended and extended, sixteen were suspended from one corner, and thirty-five suspended and pleated.

The materials Flannelette, Art Muslin, Curtain Net, and Scenic Canvas as received from the vendors burnt rapidly in all tests.

The same materials as washed in the ordinary way burnt rapidly in all tests.

The same materials as washed and treated with the Snowdon process charred only in eighty-three tests, out of a total of eighty-four tests undertaken, but in one test the sample (No. 1105) was nearly all consumed.

Note.—The testor submits a statement in respect to the sample No. 1105 to the effect that upon analysis of a remnant oil was for some unexplained reason found thereon.

The materials Tissue Paper and Wadding as received from the vendor burnt rapidly in all tests.

The same materials treated with the Snowdon process charred only in the whole of the twelve tests undertaken.

The details of the tests are as follows:

GROUP I. FLANNELETTE (ORDINARY).

Standard Tests.—All the four samples in this group tested under standard conditions immediately took fire, the flame rapidly travelling up the centre of the sample and extending to right and left. (*See Fig. 4.*)

Of the unwashed sample 97.76 per cent. of the material was consumed in 60 seconds.

Of the three washed samples an average of 97.20 per cent. of the material was consumed in 60 seconds.

Additional Tests.—Of the two samples in this group *suspended from one corner* each immediately took fire, the flame rapidly travelling up the material.

Both the unwashed and washed sample were entirely consumed within 60 seconds.

Additional Tests.—Of the three samples in this group *suspended and pleated*, all immediately took fire, the flame rapidly travelling up the centre of the material and extending to right and left. (See Fig. 17.)

Of the unwashed sample 69.83 per cent. was consumed in 60 seconds.

Of the two washed samples both were entirely consumed within 60 seconds.

GROUP Ia. FLANNELETTE (ORDINARY) TREATED BY THE SNOWDON PROCESS.

Standard Tests. The twelve samples in this group tested under standard conditions, all of which were washed, obtained classification as "non-flaming." Of the six samples washed at Laundry A an average of only 0.57 per cent. was charred, and of the six washed at Laundry B, only an average of 0.4 per cent. was charred.

Additional Tests.—Of the two samples in this group *suspended from one corner* the one washed at Laundry A "burnt rapidly," and 99.23 of the material was consumed and gave off during combustion dense smoke. The one washed at Laundry B was affected by the flame only so far as it was in contact or the power of the flame reached, and only 1.39 per cent. of the material was charred.

Note.—The testor states that upon analysis of a remnant of the sample No. 1105), which burnt rapidly, it was found to contain a quantity of oil which was not evenly distributed over the surface. The testor put in a certificate from an analyst to this effect.

Additional Test.—The four samples in this group *suspended and pleated*, all of which were washed, were affected by the flame only so far as it was in contact or the power of the flame reached and an average of 1.46 per cent. was charred of the samples washed at Laundry A and 1.07 per cent. of those washed at Laundry B.

GROUP II. FLANNELETTE (FINE FINISH).

Standard Tests.—All the four samples in this group tested under standard conditions immediately took fire, the flame rapidly travelling up the centre of the sample and extending to right and left. (See Fig. 6.)

Of the unwashed sample 65.28 per cent. of the material was consumed in 60 seconds.

Of the three washed samples an average of 89.10 per cent. of the material was consumed in 60 seconds.

Flannelette, Ordinary (untreated).

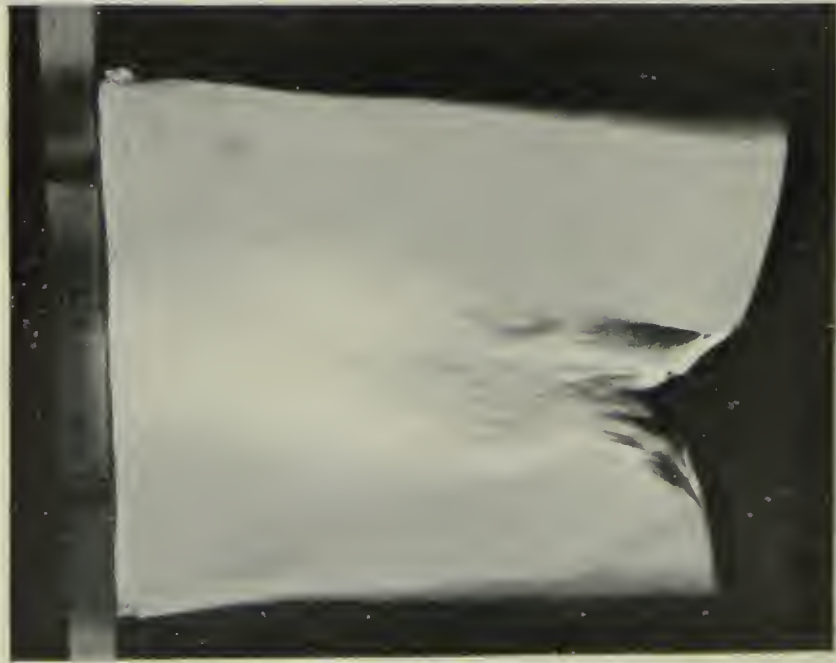


Fig. 4 Test No. 103.
View at 15 seconds during test.

Flannelette, Ordinary (treated).



Fig. 5 Test No. 115.
View after 10 seconds test.

Flamelette, Fine Finish (untreated).

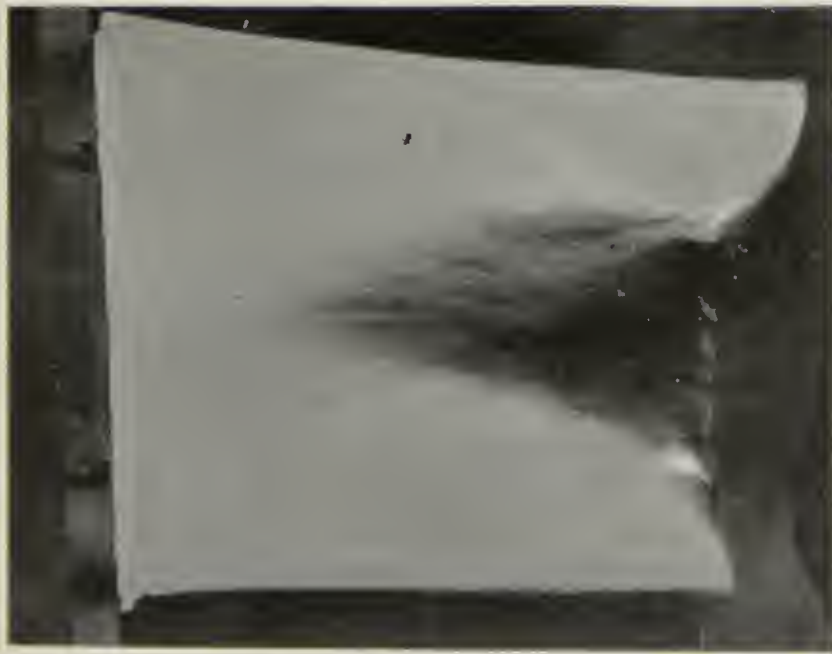


Fig. 6. Test No. 203.
View at 23 seconds during test.

Flamelette, Fine Finish (treated).



Fig. 7. Test No. 215.
View after 60 seconds test.

Additional Tests.—The one sample in this group *suspended from one corner* immediately took fire, the flame rapidly travelling up the centre of the material, and 99.92 per cent. of the material was consumed in 60 seconds.

Additional Tests.—Of the three samples in this group *suspended and pleated* all immediately took fire, the flame rapidly travelling up the centre of the material and extending to right and left.

Of the unwashed sample the whole was consumed in 60 seconds.

Of the two washed samples an average of 99.50 per cent. was consumed in 60 seconds.

GROUP IIa. FLANNELETTE (FINE FINISH) TREATED BY THE SNOWDON PROCESS.

Standard Tests.—The twelve samples in this group, tested under standard conditions, all of which were washed, obtained classification as “non-flaming.” Of the six samples washed at Laundry A an average of only 0.36 per cent. was charred, and of the six washed at Laundry B an average of only 0.41 per cent. was charred.

Additional Tests.—Of the two samples in this group *suspended from one corner* each was affected by the flame only so far as it was in contact or the power of the flame reached, and an average of 0.39 per cent. of the material was charred.

Additional Tests.—The four samples in this group *suspended and pleated*, all of which were washed, were affected by the flame only so far as it was in contact or the power of the flame reached, and an average of 1.00 per cent. was charred of the samples washed at Laundry A and 1.23 per cent. of those washed at Laundry B.

GROUP III. ART MUSLIN.

Standard Tests.—All the four samples in this group, tested under standard conditions, immediately took fire, the flame travelling rapidly up the centre of the sample and extending to right and left. (See Fig. 11.)

Of the unwashed sample all was consumed in 30 seconds.

Of the three washed samples the whole of the material in each sample was consumed within 60 seconds.

Additional Tests.—The one sample in this group *suspended from one corner* immediately took fire, the flame rapidly travelling up the centre of the material, and the whole was consumed in 9 seconds.

Additional Tests.—Of the three samples in this group *suspended and pleated* all immediately took fire, the flame rapidly travelling up the centre of the material and extending to right and left.

Of the unwashed sample the whole was consumed in 13 seconds.

Of the two washed samples the whole of each was consumed in 9 seconds.

GROUP IIIa. ART MUSLIN TREATED BY THE SNOWDON PROCESS.

Standard Tests.—The six samples in this group, tested under standard conditions, all of which were washed at Laundry B, obtained classification as “non-flaming”; an average only of 1.72 per cent. of the material was charred.

Additional Tests.—Of the two samples in this group *suspended from one corner* each was affected by the flame only so far as it was in contact or the power of the flame reached, and an average of 0.93 per cent. of the material was charred.

Additional Tests.—The four samples in this group *suspended and pleated*, all of which were washed, were affected by the flame only so far as it was in contact or the power of the flame reached, and an average of 1.39 per cent. was charred of the samples washed at Laundry A and 1.85 per cent. of those washed at Laundry B.

GROUP IV. CURTAIN NET.

Standard Tests.—All the four samples in this group, tested under standard conditions, immediately took fire, the flame travelling rapidly up the centre of the sample and extending to right and left. (See Fig. 13.)

Of the unwashed sample all was consumed in 60 seconds.

Of the three washed samples the whole of the material in each sample was consumed within 60 seconds.

Additional Tests.—The one sample in this group *suspended from one corner* immediately took fire, the flame rapidly travelling up the centre of the material, and the whole was consumed in 9 seconds.

Additional Tests.—Of the three samples in this group *suspended and pleated* all immediately took fire, the flame rapidly travelling up the centre of the material and extending to right and left.

Of the unwashed sample the whole was consumed in 19 seconds.

Of the two washed samples the whole of each was consumed in under 20 seconds.

GROUP IVa. CURTAIN NET TREATED BY THE SNOWDON PROCESS.

Standard Tests.—The twelve samples in this group, tested under standard conditions, all of which were washed, obtained classification as “non-flaming”; of the six samples washed at Laundry A an average of only 0.50 per cent. was charred and of the six washed at Laundry B an average of only 1.03 was charred.

Additional Tests.—Of the two samples in this group *suspended from one corner* each was affected by the flame only so far as it was in contact or the power of the flame reached, and only an average of 0.65 per cent. of the material was charred.

Additional Tests.—The four samples in this group *suspended and pleated*, all of which were washed, were affected by the flame only so far as it was in contact or the power of the flame reached, and an average of 3.00 per cent. was charred of the samples washed at Laundry A and 1.46 per cent. of those washed at Laundry B.

GROUP V. SCENIC CANVAS.

Standard Tests.—All the four samples in this group, tested under standard conditions, immediately took fire, the flame travelling rapidly up the centre of the sample and extending to right and left. (See Fig. 15.)

Of the unwashed sample 38.89 per cent. of the material was consumed in 60 seconds.

Of the three washed samples an average of 60.64 per cent. was consumed in 60 seconds.

Additional Tests.—The one sample in this group *suspended from one corner* immediately took fire, the flame rapidly travelling up the centre of the material, and 73.15 per cent. was consumed in 60 seconds.

Additional Test.—Of the three samples in this group *suspended and pleated*, all immediately took fire, the flame rapidly travelling up the centre of the material, and extending to right and left.

Of the unwashed sample 99.84 per cent. was consumed in 60 seconds.

Of the two washed samples the whole of each was consumed in under 45 seconds.

GROUP Va. SCENIC CANVAS TREATED BY THE SNOWDON PROCESS.

Standard Tests.—The twelve samples in this group tested under standard conditions, all of which were washed, obtained classification as "non-flaming"; of the six samples washed at Laundry A an average of only 0.45 per cent. was charred, and of the six washed at Laundry B an average of only 0.51 per cent. was charred.

Additional Tests.—Of the two samples in this group *suspended from one corner*, each was affected by the flame only so far as it was in contact or the power of the flame reached, and an average of 0.27 per cent. was charred.

Additional Tests.—The four samples in this group *suspended and pleated*, all of which were washed, were affected by the flame only so far as it was in contact or the power of the flame reached, and an average of 1.73 per cent. was charred of the samples washed at Laundry A and 0.46 per cent. of those washed at Laundry B.

TABULATED SUMMARY OF RESULTS OF TESTS.

	CONDITION OF MATERIALS AT TIME OF TEST.	How placed for testing.	GROUP I. FLANNELETTE (ORDINARY).				GROUP II. FLANNELETTE (FINE FINISH).				GROUP III. ART MUSLIN.				GROUP IV. CURTAIN NET.				GROUP V. SCENIC CANVAS.			
			No. of samples tested by appli- cation of <i>Spirit Lamp.</i>	Average per- centage per sq. yard of sample con- sumed.	No. of samples tested by appli- cation of <i>Taper.</i>	Average per- centage per sq. yard of sample con- sumed.	No. of samples tested by appli- cation of <i>Spirit Lamp.</i>	Average per- centage per sq. yard of sample con- sumed.	No. of samples tested by appli- cation of <i>Taper.</i>	Average per- centage per sq. yard of sample con- sumed.	No. of samples tested by appli- cation of <i>Spirit Lamp.</i>	Average per- centage per sq. yard of sample con- sumed.	No. of samples tested by appli- cation of <i>Taper.</i>	Average per- centage per sq. yard of sample con- sumed.	No. of samples tested by appli- cation of <i>Spirit Lamp.</i>	Average per- centage per sq. yard of sample con- sumed.	No. of samples tested by appli- cation of <i>Taper.</i>	Average per- centage per sq. yard of sample con- sumed.	No. of samples tested by appli- cation of <i>Spirit Lamp.</i>	Average per- centage per sq. yard of sample con- sumed.	No. of samples tested by appli- cation of <i>Taper.</i>	Average per- centage per sq. yard of sample con- sumed.
Standard Tests.	As received from Vendor. Ten times washed and ten times ironed. Laundry A. Ten times washed and ten times ironed. Laundry B.	Suspended and extended.	— — —	— — —	one three	97.76 97.29	— — —	— — —	one three	65.28 89.10	— — —	— — —	one three	100.00 100.00	— — —	— — —	one three	62.50 100.00	— — —	— — —	one three	38.89 60.64
Additional Tests.	As received from Vendor. Ten times washed and ten times ironed. Laundry A. Ten times washed and ten times ironed. Laundry B.	Suspended from one corner.	— — —	— — —	one one	100.00 100.00	— — —	— — —	one —	99.92	— — —	— — —	one —	100.00	— — —	— — —	one —	100.00	— — —	— — —	one —	73.15
Additional Tests.	As received from Vendor. Ten times washed and ten times ironed. Laundry A. Ten times washed and ten times ironed. Laundry B.	Suspended and pleated.	one two —	69.83 100.00 —	— — —	— — —	one two —	100.00 99.50 —	— — —	— — —	one two —	100.00 100.00 —	— — —	— — —	one two —	100.00 100.00 —	— — —	one two —	99.84 100.00 —	— — —	— — —	— — —
			GROUP Ia. FLANNELETTE (ORDINARY). Treated with the Snowdon process.				GROUP IIa. FLANNELETTE (FINE FINISH). Treated with the Snowdon process.				GROUP IIIa. ART MUSLIN. Treated with the Snowdon process.				GROUP IVa. CURTAIN NET. Treated with the Snowdon process.				GROUP Va. SCENIC CANVAS. Treated with the Snowdon process.			
			No. of samples tested by appli- cation of <i>Spirit Lamp.</i>	Average per- centage per sq. yard of sample con- sumed.	No. of samples tested by appli- cation of <i>Taper.</i>	Average per- centage per sq. yard of sample con- sumed.	No. of samples tested by appli- cation of <i>Spirit Lamp.</i>	Average per- centage per sq. yard of sample con- sumed.	No. of samples tested by appli- cation of <i>Taper.</i>	Average per- centage per sq. yard of sample con- sumed.	No. of samples tested by appli- cation of <i>Spirit Lamp.</i>	Average per- centage per sq. yard of sample con- sumed.	No. of samples tested by appli- cation of <i>Taper.</i>	Average per- centage per sq. yard of sample con- sumed.	No. of samples tested by appli- cation of <i>Spirit Lamp.</i>	Average per- centage per sq. yard of sample con- sumed.	No. of samples tested by appli- cation of <i>Taper.</i>	Average per- centage per sq. yard of sample con- sumed.	No. of samples tested by appli- cation of <i>Spirit Lamp.</i>	Average per- centage per sq. yard of sample con- sumed.	No. of samples tested by appli- cation of <i>Taper.</i>	Average per- centage per sq. yard of sample con- sumed.
Standard Tests.	As received from Vendor. Ten times washed and ten times ironed. Laundry A. Ten times washed and ten times ironed. Laundry B.	Suspended and extended.	— — —	— — —	— six	— 0.57 0.40	— — —	— — —	— six six	— 0.36 0.41	— — —	— — —	— — six	— — 1.72	— — —	— — —	— — six	— — 1.03	— — —	— — —	— — six	— — 0.45 0.51
Additional Tests.	As received from Vendor. Ten times washed and ten times ironed. Laundry A. Ten times washed and ten times ironed. Laundry B.	Suspended from one corner.	— — —	— — —	— one one	— 99.23 1.39	— — —	— — —	— one one	— 0.46 0.31	— — —	— — —	— one one	— 0.62 1.24	— — —	— — —	— one one	— 0.09 0.02	— — —	— — —	— one one	— 0.23 0.31
Additional Tests.	As received from Vendor. Ten times washed and ten times ironed. Laundry A. Ten times washed and ten times ironed. Laundry B.	Suspended and pleated.	— two two	— 1.46 1.07	— — —	— — —	— two two	— 1.00 1.23	— — —	— — —	— two two	— 1.39 1.85	— — —	— — —	— two two	— 3.00 1.46	— — —	— two two	— 1.73 0.46	— — —	— — —	— — —

No. 5.

No. 4.

No. 3.

No. 2.

No. 1.



196

Fig. 5. View of Skylights, from Above, before Test.



196

Fig. 6. View of Skylights, from Above, after Fire and Water Test.
(No. 5 skylight was nearest to the opening from which water was applied.)

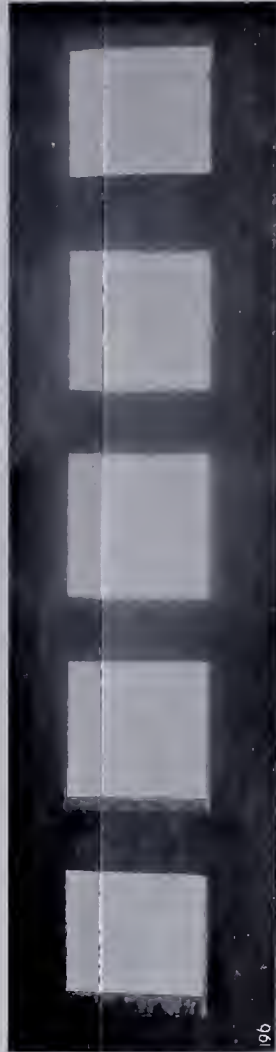
No. 1.

No. 2.

No. 3.

No. 4.

No. 5.



196

Fig. 7. View of Skylights, from Below, before Test.



196

Fig. 8. View of Skylights, from Below, after Fire and Water Test.
(No. 3 skylight was nearest to the opening from which water was applied.)

GROUP VI. TISSUE PAPER.

Standard Tests.—Of the three samples in this group, tested under standard conditions, all immediately took fire, the flame travelling rapidly up the centre of the sample and extending to right and left. The whole of each sample was entirely consumed within 16 seconds.

GROUP VIa. TISSUE PAPER TREATED BY THE SNOWDON PROCESS.

Standard Tests.—All the six samples in this group tested under standard conditions obtained classification as “non-flaming”; an average of 0.63 per cent. was charred only.

Wadding (treated).



Fig. 8. TEST No. XIX.
View at 55 seconds during test.

Paper (treated)



Fig. 9. TEST V.
View at 30 seconds during test.

GROUP VII. WADDING.

Standard Tests.—Of the three samples in this group, tested under standard conditions, each immediately took fire, the flame travelling rapidly up the centre of the sample and extending to

right and left. The whole of each sample was entirely consumed within 12 seconds.

GROUP VII α . WADDING TREATED BY THE SNOWDON PROCESS.

Standard Tests.—All the six samples in this group, tested under standard conditions, obtained classification as “non-flaming” an average of 0.45 per cent. was charred only.

ARRANGEMENTS FOR THE TESTS.

The materials submitted for test were purchased by the testors in the ordinary course of business, the flannelette, art muslin, and curtain net from drapers, and the scenic canvas from a wholesale firm.

Each material was purchased in two lots, and on two different dates, i.e. in May and June, 1912, respectively, and the invoices have been deposited with the Committee.

The first lots, purchased in May, were purchased in the following quantities and at the prices named below:

Yards.	Material.	Purchased from	Price.
13	Flannelette, Ordinary ...	Draper Bros. ...	3 $\frac{3}{4}$ d.
13	„ Fine ...	Thomas Wallis & Co., Ltd. ...	8 $\frac{3}{4}$ d.
15	Art Muslin ...	„ „ ...	3d.
15	Curtain Net ...	„ „ ...	4 $\frac{1}{4}$ d.
14	Scenic Canvas ...	A. F. Latto & Co. ...	11 $\frac{1}{2}$ d.

The second lots, purchased in June, were purchased in the following quantities and at the prices named below:

Yards.	Material.	Purchased from	Price.
17 $\frac{1}{2}$	Flannelette, Ordinary ...	Draper Bros. ...	3 $\frac{3}{4}$ d.
17 $\frac{1}{2}$	„ Fine ...	Thomas Wallis & Co., Ltd. ...	8 $\frac{3}{4}$ d.
10	Art Muslin ...	„ „ ...	3d.
17 $\frac{1}{2}$	Curtain Net ...	„ „ ...	4 $\frac{1}{4}$ d.
17 $\frac{1}{2}$	Scenic Canvas ...	A. F. Latto & Co. ...	11 $\frac{1}{2}$ d.

The testors were instructed by the Committee to have some of the washing and treatment done at the Benlah Laundry, 274 South Lambeth Road, London, which is known in this report as Laundry A, nominated by the Committee. The remaining material was to be washed and treated at a laundry selected by the testor, viz., the Norwood and Dulwich Dyeing, Cleaning, and Carpet Beating Co., Ltd., of 126 to 132 Hamilton Road, West Norwood, London, known as Laundry B.

From each of the first lots, 20 pieces (samples), measuring 1 yard by 15 in., were cut for the purpose of the tests to be reported upon.

These 20 samples of each of the five materials were dealt with as follows:

Two samples were retained as delivered.

Four samples were washed, dried, and ironed 10 times by Laundry A.

Ten samples were washed, dried, and ironed and then treated with Snowdon's Fireproofing Solution, and dried in a hot chamber by Laundry A.

Four samples were washed and dried and ironed and naturally dried by Laundry B.

Note.—Six pieces of the treated art muslin from this lot were used for other purposes described below.

From each of the second lots (except the art muslin), ten pieces (samples), measuring 3ft. by 3ft. 3in. (0·914m. by 0·991m.), were cut for the purpose of the tests here reported upon, and of the art muslin certain pieces were also so cut and other pieces to make up the necessary number formed out of pieces from the first lot, cut about 15in. wide and sewn together.

These ten samples of each of the five materials were dealt with as follows:

One sample was retained as delivered.

Three samples were washed, dried, and ironed ten times by Laundry A.

Six samples were washed, dried, and ironed, and treated with Snowdon's Fireproofing Solution before the last ironing by Laundry B.

Laundry A states the washing was done as follows:

The curtains and coarse linen we washed by machine, having about 20 minutes' washing with oil soap, then rinsed in hot and cold water, dried and ironed.

The other articles were all washed by hand, dried and ironed.

All of these processes were repeated ten times, and the material then fireproofed with Messrs. Snowdon's patent fireproofing material.

Laundry B states the washing was done as follows:

Cold water break down	5 minutes.
White goods washed and boiled in Field's pure oil soap and Brunner Mond's alkali	20 minutes.
Coloured goods as above, but washed only (not boiled)	10 minutes.
The warm rinse	10 minutes.
Two cold rinses	10 minutes.
Centrifuged or Hydroed	10 minutes.
Dried in moderate heat, 90° Fahr.		
Ironed.		

The above process was carried out ten times. Afterwards the material was treated with Messrs. Snowdon & Co.'s process.

The whole of the samples from both lots were delivered at the Testing Station on June 24th and 25th, 1912, and were further ironed once on June 25th, sorted and arranged for testing.

No sample felt damp to the touch on June 26th, the testing day, but one sample of treated flannelette (ordinary), No. 1105, smelt of rancid oil.

SUPPLEMENTARY TESTS WITH PAPER AND WADDING.

For additional tests Paper and Wadding were selected by the British Fire Prevention Committee.

Nine sheets of paper were numbered I-IX, of which Nos. I-III were sent to the Committee as purchased, and Nos. IV-IX were treated with Snowdon's Fireproofing Solution.

Nine samples of Wadding were numbered XI-XIX, of which

Nos. XI-XIII were sent to the Committee as purchased, and Nos. XIV-XIX were treated with Snowdon's Fireproofing Solution.

The Paper and Wadding samples were delivered together with the other materials for tests at the Committee's Testing Station.

The paper and wadding were suspended as for the standard test and tested in Hut No. 1b.



Fig. 10. VIEW OF THE INTERIOR OF TESTING HUT 1a.

TESTING.

The materials were tested by three methods. By being 1) extended and suspended from three hooks fixed in a beam. 2) Hung vertically from one corner to a hook in a beam. 3) Pleated, so as to reduce the width, and suspended. See Figs. 1, 2, 3.

The means of producing flame was by a spirit lamp, with a flame about $4\frac{1}{2}$ ins. (0.114m.), or by a wax taper. See Figs. 1, 2, 3.

The tests with the spirit lamp were conducted as follows:

At a given signal the lamp was placed in direct contact with the bottom edge of the material in the centre, and remained there during the tests or until the material was well alight.

The tests with the taper were conducted as follows:

At a given signal the taper was applied direct to the bottom edge of the material in the centre, and removed when the material was ignited.

The maximum time for each test was one minute, after which any flame was extinguished.

The portion of the material burnt was measured, and a sketch record taken.

Photographs were taken during the tests of certain samples at the discretion of the directing member.

The samples to be tested were arranged as follows:

In one yard lengths and either 15 ins. or 36 ins. wide as per detailed tables.	Flannel-ette, ordinary.		Flannel-ette, fine finish.		Art Muslin.	Curtain Net.		Scenic Canvas.		Tissue Paper.		Wadding.		Total Samples.	
	Group I.	Group IA.	Group II.	Group IIA.	Group III.	Group IIIA.	Group IV.	Group IVA.	Group V.	Group VA.	Group VI.	Group VIA.	Group VII.		Group VIIA.
Hung extended ... (Standard Tests.)	4	12	4	12	4	6	4	12	4	12	3	6	3	6	92
Hung at end ...	2	2	1	2	1	2	1	2	1	2	—	—	—	—	16
Hung2 pleated ...	3	4	3	4	3	4	3	4	3	4	—	—	—	—	35
Total in each Group	9	18	8	18	8	12	8	18	8	18	3	6	3	6	143

PREPARATIONS FOR THE TESTS.

The tests were undertaken on Wednesday, June 26th, 1912.

The weather conditions were as follows:

At 3 p.m., state of weather, cloudy.

Wind S.S.W. Barometer 29.97 in. Attached thermometer 65° Fahr. (18.3° C.) Dry bulb 69° Fahr. (20.5° C.) Wet bulb 61° Fahr. (16.1° C.).

Afternoon fine and bright.

Huts No. 1a and No. 1b, open to the west, were used for the tests.

For testing the samples a table was placed in each of the huts, under a beam, to which the sample was hung and brought down over the table. The spirit lamp or taper was applied to the lower edge (*see* Figs. 1, 2, 3). as occasion required.

LOGS OF TESTS.

The following tables give the Logs of the various tests :

GROUP I.

FLANNELETTE (ORDINARY).

Standard Test.	Refer. Number of Sample.	At what Laundry washed if any.	Conditions and number of washings, if any.	Where tested.	How placed for testing.	Means of producing flame.	Distance of flame from fabric.	Length of time flame in contact.	Duration of Test.	Area of Sample, sq. in.	Area of Sample burnt, sq. in.	Amount per cent. burnt, per sq. yd.	REMARKS.		Refer. Number of Sample.
													Flame reached top of sample in.	Generally.	
Standard Test.	101		UN-WASHED as received from Vendor.	1a	Extended and suspended.	Taper.	In contact at centre of lower edge.	Until material ignited.	60secs.	1184	1155	97.76	27secs.		101
Additional Tests.	1101			1b	Extended and suspended.	Taper.	In contact at centre of lower edge.		55secs.	544	544	100.00	25secs.	This sample should have been suspended from one corner but was extended and suspended.	1101
	11			1b.	Suspended and pleated.	Spirit Lamp.	In contact at centre of lower edge.		60secs.	517	391	69.83	45secs.		
Standard Tests.	102 103 104	A A A	TIMES WASHED and ten times ironed.	1a 1b 1b.	Extended and suspended.	Taper. Do. Do.	In contact at centre of lower edge.	Until material ignited.	42secs. 60secs. 45secs.	1184 1221 1240	1184 1101 1240	100.00 91.89 100.00	16secs. 15secs. 13secs.	All consumed in 42 secs. Photo taken, Fig. 4. All consumed in 45 secs.	102 103 104
Additional Tests.	1102 1103	A A		1b 1b.	Suspended from one corner.	Taper. Do.	In contact at lower corner.		50secs.	493	493	100.00	14secs.	All consumed in 50 secs. Not tested.	1102 1103
Additional Tests.	12 13	A A		1b 1b.	Suspended and pleated.	Spirit Lamp. Do.	In contact at centre of lower edge.		40secs. 30secs.	536 532	536 532	100.00 100.00	45secs. 18secs.	All consumed in 40 secs. All consumed in 38 secs. photo, Fig. 17.	12 13

FLANNELETTE (ORDINARY).

Treated by the Swenson Process.

GROUP Ia.

Refer. Number of Sample.	At what Laundry washed, many.	Conditions of washings, if any.	How placed for testing.	Means of producing flame.	Distance of flame from fabric.	Length of time flame in contact.	Duration of Test.	Area of Sample, in sq. in.	Area of Sample burnt, in sq. in.	Amount per cent burnt, per sq. yd.	REMARKS.	Refer. Number of Sample.
105	A	TEN TIMES WASHED and ten times ironed.	Extended and suspended.	Taper.	In contact at centre of lower edge.	60secs.	60secs.	490	9	0.69	Photo taken.	105
106	A					60secs.	60secs.	517	5	0.39		106
107	A					60secs.	60secs.	507	5	0.39		107
108	A					60secs.	60secs.	490	5	0.39		108
109	A					60secs.	60secs.	507	5	0.39		109
110	A					60secs.	60secs.	525	15	1.16		110
111	B					60secs.	60secs.	1206	5	0.39		111
112	B	TEN TIMES WASHED and ten times ironed.	Suspended from the corner.	Taper.	In contact at lower corner.	60secs.	60secs.	1188	4	0.31	Photo taken, Fig. 5.	112
113	B					60secs.	60secs.	1221	6	0.46		113
114	B					60secs.	60secs.	1188	5	0.39		114
115	B					60secs.	60secs.	1194	5	0.39		115
116	B					60secs.	60secs.	1188	6	0.46		116
1105	A	TEN TIMES WASHED and ten times ironed.	Suspended from the corner.	Taper.	In contact at lower corner.	60secs.	60secs.	493	48½	99.23	This sample during combustion made a dense smoke. Not tested.	1105
1106	A					60secs.	60secs.	476	18	1.39		1106
1112	B					60secs.	60secs.	—	—	—		1112
15	A	TEN TIMES WASHED and ten times ironed.	Suspended and pleated.	Spirit lamp.	In contact at centre of lower edge.	60secs.	60secs.	525	9	0.69	Photo taken, Fig. 18.	15
16	A					60secs.	60secs.	525	29	2.23		16
011	B					60secs.	60secs.	507	19	1.46		011
012	B					60secs.	60secs.	525	9	0.69		012

GROUP II.

FLANNELETTE (FINE FINISH).

Standard Test.	Refer. Number of Sample.	At what Laundry washed, if any.	Conditions and number of washings, if any.	Where tested.	How placed for testing.	Means of producing flame.	Distance of flame from fabric.	Length of time flame in contact.	Duration of Test.	Area of Sample, sq. in.	Area of Sample burnt, sq. in.	Amount per cent. burnt, per sq. yd.	REMARKS.		Refer. Number of Sample.
													Flame reached top of sample in	Generally.	
Standard Tests.	201	—	UN- WASHED as received from Vendor.	1a	Extended and suspended.	Taper.	In contact at centre of lower edge.	Until material ignited.	60secs.	1443	846	65.28	28secs.		201
	2,201	—		1b Do.	Suspended from one corner. Suspended and pleated.	Taper. Spirit lamp	In contact at lower corner. In contact at centre of lower edge.		— 60secs.	— 575	— 575	— 100.00	— 17secs.	Not tested.	2,201
Standard Tests.	202 203 204	A A A	TEN TIMES WASHED and ten times ironed.	1a Do. Do.	Extended and suspended.	Taper. Do. Do.	In contact at centre of lower edge.	Until material ignited.	60secs. 58secs. 60secs.	4404 4404 4404	972 1404 1406	75.00 100.00 92.31	28secs. 23secs. 24secs.	All consumed in 58secs. Photo. Fig. 6.	202 203 204
	2,202 2,203	A A		1b Do.	Suspended from one corner. Suspended and pleated.	Taper. Do.	In contact at lower corner.		60secs. —	555 —	554	90.02	20secs. —	Not tested.	2,202 2,203
Additional Tests.	22 23	A A		1b Do.	Suspended and pleated.	Spirit lamp. Do.	In contact at centre of lower edge.		60secs. 60secs.	570 566	567 566	60.00 100.00	23secs. 22secs.	Photo taken. Fig. 12.	22 23

FLANNELETTE (FINE FINISH).

Treated by the Swardon Process.

GROUP Ha.

Refer. Number of Sample.	At what Laundry washed, if any.	Conditions and number of washings, if any.	Washing Machine No.	How placed for testing.	Means of producing flame.	Distance of flame from fabric.	Length of time flame in contact.	Duration of Test.	Area of Sample, in sq. in.	Area of Sample burnt, in sq. in.	Amount per cent. burnt, per sq. yd.	REMARKS.	Refer. Number of Sample.
205	A	TEN TIMES WASHED and ten times ironed.	1a	Extended and suspended.	Taper.	In contact at centre of lower edge.	60secs.	60secs.	540	4	0.31	Photo taken	205
206	A		1b		Do.		60secs.	60secs.	555	5	0.39		206
207	A		1b		Do.		60secs.	60secs.	555	5	0.39		207
208	A		1b		Do.		60secs.	60secs.	555	5	0.39		208
209	A		1b		Do.		60secs.	60secs.	555	5	0.39		209
210	B		1b		Do.		60secs.	60secs.	555	4	0.31		210
211	B		1b		Do.		60secs.	60secs.	1404	4	0.31		211
212	B		1b		Do.		60secs.	60secs.	1404	4	0.31		212
213	B		1b		Do.		60secs.	60secs.	1404	3	0.23		213
214	B		1b		Do.		60secs.	60secs.	1404	4	0.31		214
215	B	TEN TIMES WASHED and ten times ironed.	1b	Suspended from one corner.	Taper.	In contact at lower corner.	60secs.	60secs.	1404	13	1.00	Photo taken. Fig. 7.	215
216	B		1b		Do.		60secs.	60secs.	1404	4	0.31		216
2205	A		1b		Do.		60secs.	60secs.	555	6	0.46		2205
2206	A		1b		Do.		60secs.	60secs.	555	—	—		2206
2211	B		1b		Do.		60secs.	60secs.	555	4	0.31		2211
2212	B		1b		Do.		60secs.	60secs.	—	—	—		2212
25	A	TEN TIMES WASHED and ten times ironed.	1b	Suspended and pleated.	Spirit lamp.	In contact at centre of lower edge.	60secs.	60secs.	555	16	1.24	Photo taken. Fig. 20.	25
26	A		1b		Do.		60secs.	60secs.	570	10	0.76		26
221	B		1b		Do.		60secs.	60secs.	546	17	1.31		221
222	B		1b		Do.		60secs.	60secs.	562	15	1.16		222

Table 4. (23)

GROUP III.

ART MUSLIN.

Refer. Number Sample.	At what Laundry washed, if any.	Conditions, and number of washings, if any.	White Tested.	How placed for testing.	Means of pro- ducing flame.	Distance of flame from fabric.	Length of time flame in contact.	Dura- tion of Test.	Area of Sample burnt, in sq. in.	Area of Sample burnt, in sq. in.	Amount per cent. burnt, per sq. yd.	Flame reached top of sample in	REMARKS. (generally.)	Refer. Number of Sample
Standard Test.	301	—	1a	Extended and suspended.	Taper.	In contact at centre of lower edge.	Until ma- terial igni- ted.	30secs.	576	576	100.00	10secs.	All consumed in 30secs.	301
Additional Tests.	330r	—	1b	Suspended from one corner	Taper.	In contact at lower corner.	}	}	—	—	—	—	Not tested.	330r
	31	UN- WASHED as re- ceived from Vendor.	Do.	Suspended and pleated.	Spirit lamp.	In contact at centre of lower edge.								
Standard Tests.	302	A	1a	Extended and suspended.	Taper.	In contact at centre of lower edge.	}	}	60secs. 35secs. 40secs.	1100 1295 1296	100.00 100.00 100.00	7secs. 9secs. 9secs.	Photo. Fig. 11. All consumed in 35secs. All consumed in 40secs.	302 303 304
	303	A	1b	Suspended from one corner.	Taper.	In contact at lower corner.								
	3302	A	Do.	Suspended and pleated.	Spirit lamp.	In contact at centre of lower edge.								
Additional Tests.	3303	A	1b	Suspended and pleated.	Do.	In contact at lower corner.	Until ma- terial igni- ted.	9secs.	540	540	100.00	5secs.	All consumed in 9secs.	3302
	32	A	1b	Suspended and pleated.	Do.	In contact at lower corner.	Until ma- terial igni- ted.	9secs.	538	538	100.00	3secs.	All consumed in 9secs.	3303
Additional Tests.	33	A	Do.	Suspended and pleated.	Do.	In contact at lower corner.	Until ma- terial igni- ted.	9secs.	558	558	100.00	3secs.	All consumed in 9secs.	3304

ART MUSLIN. *Treated by the Snowdon Process.*

GROUP IIIa.

Refer. Number of Sample.	At what laundry washed, if any.	Conditions and number of washings, if any.	How placed for testing.	Means of pro- ducing flame.	Distance of flame from fabric.	Length of time flame in contact.	Dura- tion of Test.	Area of Sample, in sq. in.	Area of Sample burnt, in sq. in.	Amount burnt, per sq. yd.	REMARKS.	Refer. Number of Sample.
305	A	TEN TIMES WASHED and ten times ironed.	Extended and suspended.	Taper. Do. Do. Do. Do. Do.	In contact at centre of lower edge.	60secs. 60secs. 60secs. 60secs. 60secs. 60secs.	60secs. 60secs. 60secs. 60secs. 60secs. 60secs.	1332 1260 1368 1332 1296 1280	8 52 48 9 9 8	0.62 4.01 3.70 0.69 0.69 0.62	Not tested. Do. Do. Do. Do. Photo taken. Photo taken. Fig. 12. Photo taken.	305
306	A											306
307	A											307
308	A											308
309	A											309
310	A											310
311	B											311
312	B											312
313	B											313
314	B											314
315	B											315
316	B											316
Additional Tests.	A	TEN TIMES WASHED and ten times ironed.	Suspended from one corner.	Taper. Do. Do. Do.	In contact at lower corner.	60secs. 60secs. 60secs. 60secs.	60secs. 60secs. 60secs. 60secs.	490 — 493 —	8 — 16 —	0.62 — 1.24 —	Not tested.	3305
	A											3306
	B											3311
	B											3312
Additional Tests.	A	TEN TIMES WASHED and ten times ironed.	Suspended and pleated.	Spirit lamp. Do. Do. Do.	In contact at centre of lower edge.	60secs. 60secs. 60secs. 60secs.	60secs. 60secs. 60secs. 60secs.	518 525 510 540	22 14 30 18	1.70 1.68 2.31 1.39		35
	A											36
	B											031
	B											032

GROUP IV.

CURTAIN NET.

Standard Test.	Refer. Number of Sample.	At what Laundry washed, if any.	Conditions and number of washings, if any.	Where Tested.	How placed for testing.	Means of producing flame.	Distance of flame from fabric, contact.	Length of time flame in contact.	Duration of Test.	Area of Sample, in sq. in.	Area of Sample burnt, in sq. in.	Amount per cent. burnt, per sq. yd.	REMARKS.		Refer. Number of Sample.
													Flame reached top of sample in	Generally.	
Standard Test.	401	—	UN- WASHED as received from Vendor.	1a	Extended and suspended.	Taper.	In contact at centre of lower edge.	Until material ignited.	60secs.	540	486	62.50	22secs.		401
	4401	—		1b	Suspended from one corner.	Taper.	In contact at lower corner.		—	—	—	—	—	Not tested.	4401
	41	—		Do.	Suspended and pleated.	Spirit lamp.	In contact at centre of lower edge.		19secs.	558	558	100.00	11secs.	All consumed in 19 secs.	41
Standard Tests.	402	A	TEN TIMES WASHED and ten times ironed.	1a	Extended and suspended.	Taper.	In contact at centre of lower edge.	Until material ignited.	60secs.	1260	1260	100.00	8secs.	Photo taken. Fig. 13.	42
	403	A		Do.		Do.			60secs.	1224	1224	100.00	10secs.	All consumed in 58secs.	43
	404	A		Do.		Do.			35secs.	1156	1156	100.00	8secs.		44
Additional Tests.	402	A		1b	Suspended from one corner.	Taper.	In contact at lower corner.	Until material ignited.	9secs.	403	403	100.00	4secs.	All consumed in 4secs.	42
	403	A		Do.		Do.			—	—	—	—	—	Not tested.	44
Additional Tests.	42	A		1b	Suspended and pleated.	Spirit lamp.	In contact at centre of lower edge.		20secs.	405	405	100.00	9secs.	All consumed in 20secs.	42
	43	A		Do.		Do.			17secs.	528	528	100.00	6secs.	All consumed in 17secs.	43

CURTAIN NET.

Treated by the Snowdon Process.

GROUP IVa.

Refer. Number of Sample.	At what laundry washed, if any.	Conditions of washings, if any.	How placed for testing.	Means of pro- ducing flame.	Distance of flame from fabric.	Length of time flame in contact.	Dura- tion of Test.	Area of Sample, in sq. in.	Area of Sample burnt, in sq. in.	Amount per cent. burnt, per sq. yd.	REMARKS.	Refer. Number of Sample.
Standard Tests.	405	A	Extended and suspended.	Taper.	In contact at centre of lower edge.	60secs.	60secs.	434	7	0.54	Photo taken. Photo taken, Fig. 14.	405
	406	A		Do.		60secs.	60secs.	416	9	0.69		406
	407	A		Do.		60secs.	60secs.	429	5	0.39		407
	408	A		Do.		60secs.	60secs.	448	7	0.54		408
	409	A		Do.		60secs.	60secs.	416	5	0.39		409
	410	A		Do.		60secs.	60secs.	448	6	0.46		410
	411	B		Do.		60secs.	60secs.	960	10	0.77		411
	412	B		Do.		60secs.	60secs.	1044	12	0.93		412
	413	B		Do.		60secs.	60secs.	1023	12	0.93		413
	414	B		Do.		60secs.	60secs.	992	25	1.93		414
Additional Tests.	415	B	Suspended from one corner.	Do.	In contact at lower corner.	60secs.	60secs.	1023	12	0.93	Not tested. Not tested.	415
	416	B		Do.		60secs.	60secs.	1023	9	0.69		416
	4405	A		Taper.		60secs.	60secs.	434	9	0.69		4405
	4406	A		Do.		60secs.	60secs.	—	—	—		4406
Additional Tests.	4411	B	Suspended and pleated.	Do.	In contact at centre of lower edge.	60secs.	60secs.	434	8	0.62	Not tested.	4411
	4412	B		Do.		60secs.	60secs.	—	—	—		4412
	45	A		Spirit lamp.		60secs.	60secs.	528	30	2.31		45
	46	A		Do.		60secs.	60secs.	462	48	3.76		46
Additional Tests.	041	B	Suspended and pleated.	Do.	In contact at centre of lower edge.	60secs.	60secs.	434	33	2.55	Not tested.	041
	042	B		Do.		60secs.	60secs.	480	5	0.38		042

GROUP I.

SCENIC CANVAS.

Refer. Number of Sample.	At what Laundry washed, if any.	Conditions and number of washings, if any.	Where tested.	How placed for testing.	Means of pro- ducing flame.	Distance of flame from fabric.	Length of time flame in contact.	Area of Sample, in sq. in.	Area of Sample burnt, in sq. in.	Amount per cent. burnt, sq. yd.	REMARKS.		Refer. Number of Sample.
											Flame reached top of sample in	Generally.	
501	—	UN- WASHED as re- ceived from Vendor.	1a	Extended and suspended.	Taper.	In contact at centre of lower edge.	Until ma- terial igni- ted.	1,404	504	38.89	32secs.		501
5501	—		1b	Suspended from one corner.	Taper. Do.	{ In contact at lower corner. In contact at centre of lower edge.	}	—	—	—	—	Not tested.	5501
51	—		Do.	Suspended and pleated.				525	523	99.84	25secs.		51
502	A	TEN- TIMES WASHED and ten times ironed.	1a	Extended and suspended.	Taper. Do. Do.	In contact at centre of lower edge.	Until ma- terial igni- ted.	1295 1330 1292	846 792 720	65.28 61.11 55.55	28secs. 25secs. 26secs.	Photo taken, Fig. 15.	502 503 504
5502	A		1b	Suspended from one corner.	Taper. Do.	In contact at lower corner.		510	348	73.15	25secs.	Not tested.	5502 5503
5503	A		Do.	Suspended and pleated.	Spirit lamp. Do.	In contact at centre of lower edge.		—	—	—	—	All consumed in 4 secs. All consumed in 4 secs.	52 53

SCENIC CANVAS.

Treated by the Snowdon Process.

GROUP 1a.

Refer. Number of Sample.	At what Laundry washed if any.	Conditions of washings, if any.	How placed for testing.	Means of pro- ducing flame.	Distance of flame from fabric.	Length of time flame in contact.	Dur- ation of Test.	Area of Sample, in sq. in.	Area of Sample burnt, in sq. in.	Amount percent. burnt, per sq. yd.	REMARKS.	Refer. Number of Sample.
505	A	TEN TIMES WASHED and ten times ironed.	Extended and suspended.	Taper.	In contact at centre of lower edge.	60secs.	60secs.	525	9	0.69	Photo taken, Fig. 16.	505
506	A			Do.		60secs.	60secs.	490	6	0.46		506
507	A			Do.		60secs.	60secs.	490	4	0.31		507
508	A			Do.		60secs.	60secs.	490	6	0.46		508
509	A			Do.		60secs.	60secs.	490	6	0.46		509
510	A			Do.		60secs.	60secs.	490	4	0.31		510
511	B			Do.		60secs.	60secs.	1188	9	0.69		511
512	B			Do.		60secs.	60secs.	1188	10	0.76		512
513	B			Do.		60secs.	60secs.	1188	5	0.39		513
514	B			Do.		60secs.	60secs.	1188	4	0.31		514
515	B	TEN TIMES WASHED and ten times ironed.	Suspended from one corner.	Do.	In contact at lower corner.	60secs.	60secs.	1100	6	0.46	Photo taken.	515
516	B			Do.		60secs.	60secs.	1188	6	0.46		516
5505	A			Taper.		60secs.	60secs.	507	3	0.23		5505
5506	A			Do.		60secs.	60secs.	—	—	—		5506
5511	B			Do.		60secs.	60secs.	455	4	0.31		5511
5512	B			Do.		60secs.	60secs.	—	—	—		5512
55	A	TEN TIMES WASHED and ten times ironed.	Suspended and pleated.	Spirit lamp.	In contact at centre of lower edge.	60secs.	60secs.	525	9	0.69		55
56	A			Do.		60secs.	60secs.	540	36	2.78		56
551	B			Do.		60secs.	60secs.	504	8	0.62		551
552	B			Do.		60secs.	60secs.	490	4	0.31		552

GROUP VI.

TISSUE PAPER

Additional Tests.	Refer. Number of Sample.	Where Tested. Init No..	How placed for testing.	Means of producing flange.	Distance of flange from fabric.	Length of time flange in contact.	Duration of Test.	Area of Sample, in sq. in.	Area of Sample burnt, in sq. in.	Amount per cent. burnt, per sq. yd.	REMARKS.		Refer. Number of Sample.
											Flange reached top of sample in	Generally.	
Additional Tests.	I.	tb	Extended and suspended.	Taper.	In contact at centre of lower edge.	Until material liquid.	16secs.	600	600	100.00	3secs.	All consumed in 16secs.	I.
	II.	Do.		Do.			13secs.	600	600	100.00	4secs.	All consumed in 13secs.	II.
	III.	Do.		Do.			15secs.	600	600	100.00	3secs.	All consumed in 15secs.	III.

GROUP VIIa.

TISSUE PAPER

Treated by the Snoredon Process.

Additional Tests.	IV.	tb	Extended and suspended.	Taper.	In contact at centre of lower edge.	60secs.	60secs.	600	8	0.62	Photo taken.	IV.
	V.	Do.		Do.			60secs.	600	6	0.46		V.
	VI.	Do.		Do.			60secs.	600	8	0.62		VI.
	VII.	Do.		Do.			60secs.	600	7	0.54		VII.
	VIII.	Do.		Do.			60secs.	600	9	0.69		VIII.
	IX.	Do.		Do.		60secs.	60secs.	600	11	0.84		IX.

GROUP VII.

WADDING

Additional Tests.	XI.	tb	Extended and suspended.	Taper.	In contact at centre of lower edge.	Until material liquid.	12secs.	507	507	100.00	2secs.	All consumed in 12secs.	XI.
	XII.	Do.		Do.			8secs.	507	507	100.00	2secs.	All consumed in 8secs.	XII.
	XIII.	Do.		Do.			9secs.	507	507	100.00	1½secs.	All consumed in 9 secs.	XIII.

GROUP VIIa.

WADDING

Treated by the Snoredon Process.

Additional Tests.	XIV.	tb	Extended and suspended.	Taper.	In contact at centre of lower edge.	60secs.	60secs.	507	8	0.62	Photo taken	XIV.
	XV.	Do.		Do.			60secs.	555	3	0.23		XV.
	XVI.	Do.		Do.			60secs.	455	4	0.31		XVI.
	XVII.	Do.		Do.			60secs.	510	7	0.54		XVII.
	XVIII.	Do.		Do.			60secs.	570	4	0.11		XVIII.
	XIX.	Do.		Do.		60secs.	60secs.	495	9	0.60		XIX.

GENERAL ARRANGEMENTS.

The tests were carried out according to the procedure laid down by the Executive for investigations of this description, and were conducted by a Sub-Committee comprising:

Ellis Marsland (District Surveyor), *Directing Member*.

Flannelette (untreated).



Flannelette (treated).



Fig. 17. TEST No. 13.
View at 18 seconds during test.

Fig. 18. TEST No. 16.
View after 60 seconds test.

Bertram Chatterton, A.M.Inst.C.E. (Surveyor, Yorkshire Insurance Co.), *Deputy Directing Member*.
J. W. Brooker (Hon. Chief Officer, Weybridge Fire Brigade).
Horace Folker, F.A.I. (*Hon. Treasurer*).
C. T. Cuss (Locomotive Dept., G.W. Railway).

S. G. Gamble, A.M.Inst.C.E. (Divisional Officer, London Fire Brigade).

The Council was represented for the testing operations of June 26th, 1912, by:

Flannelette (untreated).



Fig. 19. TEST No. 23.
View at 22 seconds during test.

Flannelette (treated).



Fig. 20. TEST No. 26.
View at 30 seconds during test.

The Rt. Hon. the Earl of Lonsborough, K.C.V.O.

W. T. Hatch, M.Inst.C.E. (Chief Engineer, Metropolitan Asylums Board).

The Executive was represented for the testing operations of June 26th, 1912, by:

Edwin O. Sachs, F.R.S.Ed. (Chairman).

The Committee's Hon. Medical Officer, Major R. J. Maitland-Coffin, F.R.C.P., was in attendance.

The general body of members were represented for the testing operations of June 26th, 1912, by:

Messrs. H. M. Bentley (Fire Insurance Manager, Western Assurance Co.), Thos. R. Brooke, Arthur R. Dyer, A.M.Inst.C.E. (Divisional Officer, London Fire Brigade), C. D. Levy (Chief Officer, Fire Brigade, Rochester), P. H. Sims (Toronto).

The following subscribers and visitors attended at the Testing Station by special invitation of the Executive during the testing operations of June 26th, 1912:

Messrs. G. Carder (Prisons Commission, Home Office), D. Cowle (Felixstowe Fire Brigade), H. Chapman, T. D. Clapham, W. W. Craig (Pullar & Sons, Ltd.), H. W. Esson (Peek, Frean & Co.), A. J. Liversedge, A.M.Inst.C.E. (Venesta, Ltd.), Ambrose Lester, C. Robey (H.M. Office of Works), A. W. Slater, Robert Yuille.

Snowdon & Co., Ltd., were represented on June 26th, 1912, by:

Messrs. H. E. Davies, S. L. Durell, E. Noltingk, E. J. E. Tyler, and E. J. Walker.

(Signed)

For the Sub-Committee conducting the test:
ELLIS MARSLAND.

For the General Testing Arrangements Sub-Committee:
J. HERBERT DYER.

For the Executive:
EDWIN O. SACHS.

Published by the Committee as
directed by the Executive.

Verified a true copy of the
Report ordered to be published.

C. ADAMI
(Assistant Secretary).

SPENCER, GIBSON & SON
(Solicitors).

Date—September 5th, 1912.

Date—September 11th, 1912.

Lists of the Committee's Publications, Contents of the Committee's Journal, etc., are obtainable upon application to the Assistant Secretary, 8 Waterloo Place, Pall Mall, London, S.W.

APPENDIX I.

TESTOR'S STATEMENT.

The flameproofing materials are supplied in powder or *concentrated* liquid form, the use of which is so simple, if the directions are followed, that flameproofing can be carried out by anyone at home.

The powder is made into the concentrated liquid by mixing 3lb. 2ozs. with a gallon of *boiling* water.

This concentrated liquid must be diluted with cold water according to the weight of the material to be flameproofed, thus:

For wood, canvas, plush, velvet, etc., add two parts cold water to one of concentrated liquid.

For serge, tapestry, huntings, etc., two and a half parts water to one of concentrated liquid.

For flannelettes, drills, wadding, etc., three parts water to one of concentrated liquid.

For gauze, muslin, mosquito net, etc., three and a half parts water to one of concentrated liquid.

For paper and artificial flowers, three to four parts water to one of concentrated liquid.

Ordinary textiles should be immersed in the diluted liquid, lightly rung out and hung out to dry, preferably in the open (drying should not be forced in a hot chamber over 80°). Where this is impracticable, as in the case of painted canvas or decorations already hung, the material should be washed, painted, or sprayed, preferably on the back.

Plush and velvet should be painted or sponged on the back, twice if necessary, letting the first dry before applying the second.

Wood should be soaked if possible—if in position wash or paint with three to four coats, allowing each coat to dry before applying next.

Paper after soaking should be placed on an inclined surface to drain, then hung to dry.

Woollen materials require stronger solution and longer soaking than cotton.



